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Hawaii, Nevada
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New Contamination Found in Mountain View's Deep Aquifer

Contamination has recently been found in new, deep monitoring wells in Mountain View below an area of shallow groundwater contamination. These wells draw from the same lower zones of the water table (aquifer) as those from which some public drinking water is drawn. However, the nearest operating public well is 1 1/2 miles away. The public wells are monitored regularly and contamination has not been discovered to date. As a result, the public health is not threatened at this time.

This incident is important because this is the first time contamination has been detected at these depths in this part of the Santa Clara Valley. Drinking water supplies here have been protected by a confining layer of clay separating the contaminated shallow aquifer from the deep drinking water aquifers. The contamination may have reached the lower aquifer by way of abandoned wells which provide a conduit between two layers, or through leaks in the confining clay layer. The extent, speed, and direction of travel of the contamination in the deep aquifer is under intensive study but is not well understood.

Details of the Situation

Contamination was first discovered at the Middlefield-Ellis-Whisman (MEW) Industrial Park in Mountain View in the summer of 1981. Chlorinated organic solvents from leaking underground storage tanks, including TCE, TCA, DCE, and DCA, were found in the shallow groundwater at levels between 300 and 1,000 parts per million (ppm). Very low amounts of contamination were reported in a deep aquifer well in February, 1986 (labeled DW-1 on accompanying map). Higher concentrations, up to 280 parts per billion (ppb), are being detected in new monitoring wells (DW-3 and 8C) drilled this spring. TCE has been the chemical found in the highest concentrations. TCE, a suspected carcinogen, is also the contaminant of greatest concern for public health. The proposed Federal standard and State Action Level for TCE is 5 ppb. The ranges at various depths are as follows:

	Well Depth	TCE Concentrations Found* (ppb)
DW-1	195-230'	ND**- 29
DW-3	181-219'	22- 67
	226-244'	110-280
	311-334'	91- 92
	346-364'	13- 18
	488-505'	ND- 55
8C	193-213'	42- 58

The DW-3 wells are adjacent to three former agricultural wells which are located under a parking garage at the MEW site. These wells may be acting as the conduits for contamination to flow from the shallow levels to the deep drinking water aquifer. Evaluation of ways to destroy these abandoned wells is underway.

*Note this data has not yet been reviewed and confirmed by laboratory quality assurance.
**ND=not detected

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Public Wells

The City of Mountain View has regularly sampled its public drinking water wells and found no contamination. Until it was removed from service in March of this year for routine maintenance, the nearest public well, MV18, was sampled weekly with no contamination found. The City is evaluating the condition of the MV18 well to determine if and when it should be brought back into service. The nearest operating public wells, at about 1 1/2 and 3 miles away, are also free of contamination. The City blends about one part groundwater with four parts Hetch Hetchy water.

Private Wells

Contamination from the MEW area has affected several private drinking water wells in Mountain View which are no longer used. While most private drinking water wells in the Santa Clara Valley draw water only from the shallow aquifers, some may also draw from the deep levels. Actions underway to prevent contamination of deep private and public drinking water wells include finding and sealing potential conduit wells.

Responsible Companies Taking Action Under Government Supervision

Three companies at the MEW area, Fairchild Semiconductor Co., Intel Corp., and Raytheon Co. are conducting the investigation under EPA supervision. The three are included among 19 sites in the South Bay that EPA has proposed for its Superfund National Priority List.

Most of the 91 known industrial groundwater contamination cases in the Santa Clara Valley are being investigated and cleaned up under the supervision of the Regional Water Quality Control Board. In the MEW case, the Board referred the matter to EPA for enforcement, and the companies are proceeding with the investigation under an administrative consent agreement they signed with the EPA, the California Department of Health Services and the Board in August of 1985. Under that agreement, the companies are conducting a joint remedial investigation and feasibility study (RI/FS).

Investigation Underway

The purpose of the RI/FS is to determine the full extent of the contamination in and around the MEW area, and to propose various options for the clean-up. The monitoring wells presently showing deep-aquifer contamination were drilled as part of this investigation. There have been a total of nearly 500 monitoring wells drilled at and near the site. In addition to the deep wells discussed above, there are several other wells that have been placed into the upper part of the deep aquifer. Initial sampling of these wells has indicated low levels of contamination. However, after redevelopment of most of these wells to eliminate any potential contamination introduced in the drilling process, most of the concentrations fell to nondetectable levels. Three wells that showed initial contamination are currently being redeveloped and resampled. Resampling of all deep wells will continue in an effort to confirm and define the contamination.

Groundwater Cleanup Actions Underway and Proposed

To date the companies have completed some cleanup work at the site, including:

- removal of the underground tanks and vaults from which the leaks originally occurred;
- removal of contaminated soil;
- removal of some of the buildings from which the leaks occurred;
- sealing of utility tunnels and storm sumps;
- drilling shallow extraction wells to remove contaminated water; and
- installation of carbon adsorption systems to treat the water being extracted before it is discharged to the sewer.

Other interim remedial actions presently under consideration include:

- construction of three slurry walls in the upper aquifer around known sources of the contamination to contain those sources;
- installing additional extraction wells and treatment systems; and
- excavating more soil and underground facilities in the area.

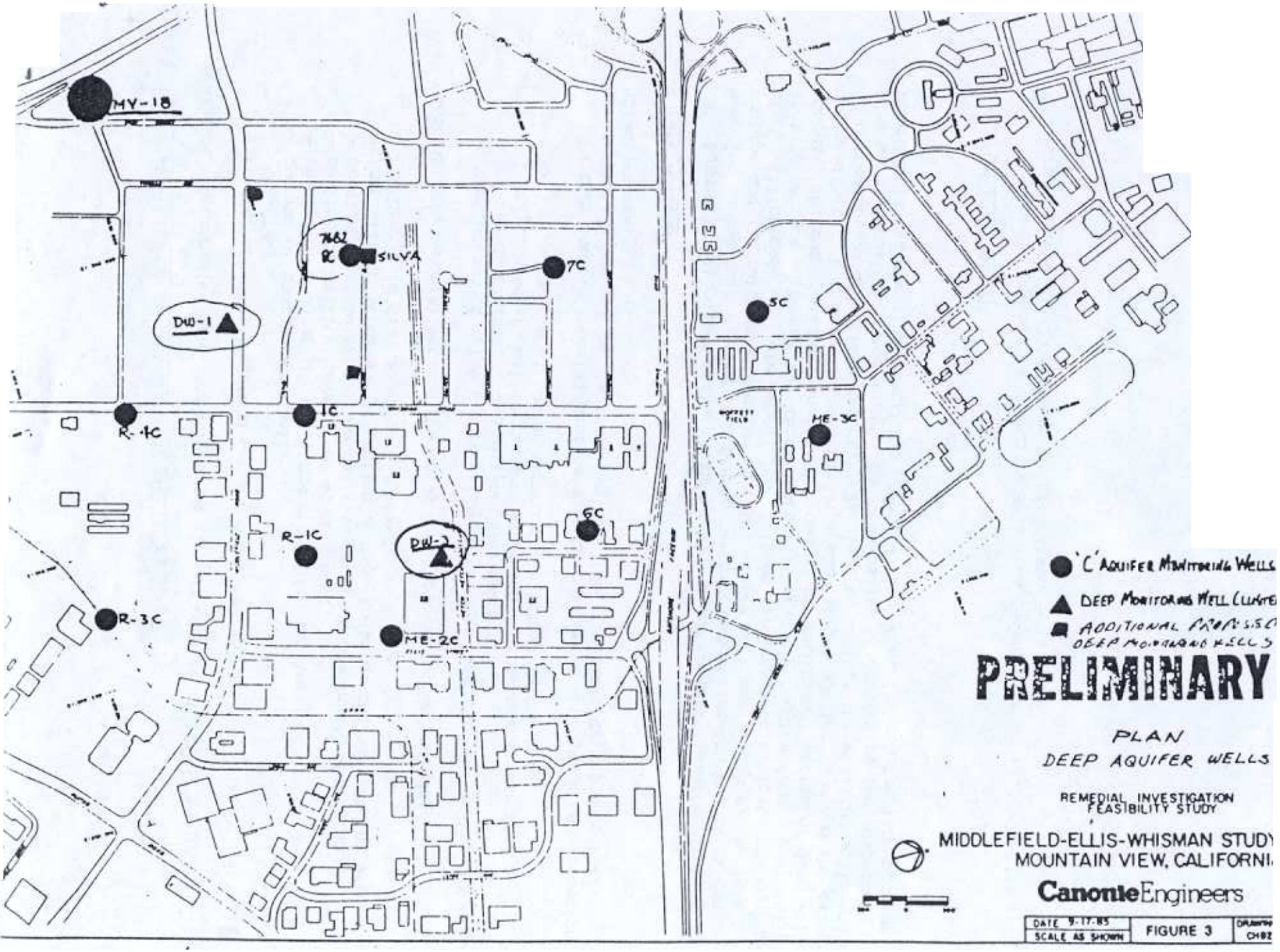
Further interim remedial actions will be considered throughout the investigation as information becomes available to evaluate their feasibility and potential effectiveness.

Future Actions

Future investigation will include continued and more extensive monitoring and sampling in the deep aquifer in order to better characterize the bounds of contamination and its rate and direction of flow. Based on these findings, the Feasibility Study will propose ultimate remedial activities to cleanup or mitigate the contamination as much as possible. This effort will probably require from a year to 18 months. The companies have initially proposed two additional series of deep wells in an effort to better understand the direction of groundwater flow and the extent of contamination at various depths. EPA plans to monitor the existing wells and to step up the monitoring frequency. The feasibility of destroying the suspected conduits is being evaluated and the agency will conduct its own sampling program.

For More Information:

Contact Rob Stern, EPA Community Relations Coordinator at (415)974-7724 or toll-free at (800)231-3075 for more information.


MV-18
7662
SILVA
7C
DW-1
5C
1C
R-1C
ME-3C
6C
R-1C
DW-2
R-3C
ME-2C
'C' AQUIFER MONITORING WELLS
DEEP MONITORING WELL CLUSTER
ADDITIONAL PROPOSED
DEEP MONITORING WELLS
PRELIMINARY
PLAN
DEEP AQUIFER WELLS
REMEDIAL INVESTIGATION
FEASIBILITY STUDY
MIDDLEFIELD-ELLIS-WHISMAN STUDY
MOUNTAIN VIEW, CALIFORNIA
Canonie Engineers
DATE 9-17-85
SCALE AS SHOWN
FIGURE 3